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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,490	02/03/2005	Andrew Edward Feiring	SR0017USPCT	3858

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EXAMINER	
HU, HENRY S	
ART UNIT	PAPER NUMBER
1713	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,490	FEIRING ET AL.	
	Examiner	Art Unit	
	Henry S. Hu	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Election of October 27, 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. It is noted that Applicants' **IDS** (2 pages) filed on May 19, 2005 was received. It is also noted that this US Application is from **PCT/US03/26088** filed on August 19, 2003. This Office Action is in response to **Election** filed on October 27, 2006. **With cancellation of three non-elected Groups II-IV (Claims 13-28), Applicant's election of Group I (Claims 1-12) is traversed with remarks on page 5.** The traversal is on the ground(s) that it would not place an undue burden to search and examine three non-elected Groups II-IV (Claims 13-28) with the elected Group I since all four groups as alleged by Applicants are both novel and non-obvious so that they share a special technical feature and thereby a separated examination is not necessary. This is not found persuasive because each group is drawn to a technology apparently requiring search in different classification area. In the instant case, Group I was drawn to **a fluorine-containing copolymer**, Group II was drawn to **a photoresist composition**, Group III was drawn to **a coated substrate**, while Group IV was drawn to **a process for coating a photoresist composition (of Group II) onto a substrate**.

2. As discussed earlier, even the fluorinated copolymer (Group I) is indeed containing in each of Group II, Group III and Group IV as a major component; each group still has different scope, process of making and process of using. Group IV's process of using a photoresist composition (Group II) is unique and thereby not interchangeable. Therefore, the scope of the claims, i.e., the metes and boundaries are distinct.

The requirement is still deemed proper and is therefore made FINAL. **Claims 1-12 with one independent claim (Claim 1) are now pending** since three non-elected Groups II-IV (Claims 13-28) are all cancelled. An action follows.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The limitation of parent **Claim 1** in present invention relates to ***a fluorine~containing copolymer*** *comprising* ***two*** *monomer units including: (A) a repeat unit derived from an ethylenically unsaturated compound having* ***at least one fluorine atom*** *covalently attached to an ethylenically unsaturated carbon atom; and (B) a repeat unit derived from an ethylenically unsaturated* ***cyclic compound*** *with specified factors as: (a)* ***m is 0, 1, or 2****; (b)* ***R^1 to R^{12} are independently from: (b1) H, (b2) halogen, (b3) carboxyl, (b4) OH, or (b5) O_2C-R^{13}****, wherein R^{13} is a $C_{1\text{-}20}$ hydrocarbon group and (c) the key point is that* ***at least one of R^1 to R^{12} is OH or O_2C-R^{13}****.*

See other limitations of dependent ***Claims 2-12****.*

5. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobo et al. (US 5,229,473).

Regarding parent **Claim 1**, instant polymer relates to **a fluorinated copolymer** comprising **two repeating units** from: (a) at least one fluoroolefin having at least one fluorine atom attaching to double bond and (b) at least one **polycyclic olefin** having a formula and its factors of **n and R^1 to R^{12}** as specified in Claim 1 with **at least one of R^1 to R^{12} is OH or O_2C-R^{13}**. **Kobo** et al. have disclosed a method for the production of **two fluorine-containing copolymers (A) and (B)** as follows:

Copolymer (A) is a dipolymer (column 1, line 65 – column 2, line 31) comprising two monomers as: (a) at least one fluoroolefin and (b) at least one cyclic unsaturated compound selected from formulas (I) or (II) , while **Copolymer (B) is a terpolymer** and is related to compolymer (A) with additional monomer such as at least one from mono- and diolefin (column 2, line 32-36).

6. Attention is directed to the fact that **at least one unsaturated cyclic compound having a functional group may be added as additional monomer** in preparing copolymers (A) and (B) as long as the properyies of copolymers are not damaged (column 6, line 42-67). In a very close examination on the chemical structure of such added extra monomer(s), **at least some of them are structurally reading on the claimed monomer (b)** with **at least one of R^1 to R^{12} is OH or carboxyl.** For instance, **monomers having –COOH and –OH functional groups**

directly attached on the polycyclic ring are specifically included (column 6, line 60-65). **Other functional group such as $-COOCH_3$, $-COOC_2H_5$ and the like may be also included** (column 2, line 59-61). It is noted that open language "**comprising**" is applied in parent Claim 1 for monomer composition. Therefore, the scope of instant polymer certainly includes Kobo's modified derivatives from dipolymer (A) and terpolymer (B). Therefore, Kobo anticipates the current limitation on parent Claim 1.

7. Remaining dependent **Claims 2-7** are thereby rejected with the same reason for the above rejection of parent Claim 1.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobo et al. (US 5,229,473) in view of Wheland et al. (US 2003/0215735 A1).

The above discussion of the disclosures of the prior art of Kobo for Claims 1-7 of this office action is incorporated here by reference. Regarding dependent **Claims 8-12, Kobo is silent about "two things" including: (A) using acrylic monomer as an additional monomer (Claim 8) and (B) using the claimed fluoroalcohol or its protected group(s) (Claims 9-12). Wheland** et al. have taught such a combination of two limitations by using **t-butyl acrylate** as comonomer (see **Example # 1** in paragraph 0103) and directly attaching a fluorinated alcoholic group or its protected substituents somewhere in the ring of polymer (paragraphs 0063-0066 and 0079). By doing so, such obtained fluoropolymers can be very useful for resist application (abstract, line 1-12; paragraphs 0003-0008).

10. Therefore, the skill artisan would make the obvious connection to further comprise monomer t-butyl acrylate as well as add the claimed fluoroalcohol or protected fluoroalcohol groups on somewhere in the cyclic alkenes so as to prepare the claimed copolymers to be very useful as a photoresist composition.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to a fluorined copolymer comprising two monomer units including: (A) an ethylenically unsaturated compound having at least one fluorine atom covalently attached to an ethylenically unsaturated carbon atom; and (B) a repeat unit derived from an ethylenically unsaturated cyclic compound as specified with the key point is that **at least one of R^1 to R^{12} is OH or O_2C-R^{13}**:

EP 1,246,013 A2 to Feiring et al. only discloses a process for the formation of photoresist by using a fluorinated copolymer having polycyclic rings (abstract, line 1-18; paragraphs 0010-0012). Although **the ring structure (H) on page 10 at line 5-15 is reading on the claimed formula of parent Claim 1, it still does not carry the claimed limitation on R^1 to R^{12}, which requires at least one of R^1 to R^{12} to be -OH or -O_2C-R^{13}**. Therefore, Feiring fails to teach or fairly suggest the fluorinated copolymer of present invention. It is noted that such an EP patent carries a **later** publication date of **October 2, 2002** in comparing with a priority date of **August 19, 2002** for instant Application.

12. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu whose telephone number is (571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The **fax** number for the organization

where this application or proceeding is assigned is **(571) 273-8300** for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Henry S. Hu

Patent Examiner, Art Unit 1713, USPTO

January 20, 2007

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